

Documenting Segmental Information *for* Teaching and Learning in Revitalization

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Documentation to Support Learning and Teaching

Documentation choices impact the teaching and learning of language.

Documenting aspects of phonetics is uncontroversial

- Detailed descriptions of sounds, recordings of words illustrating the range of possible sounds, high frequency language...

Documenting and teaching should be interwoven, informing each other

Pronunciation

The Value of Teaching Pronunciation

Value of explicitly teaching pronunciation is high

- Enunciating vowel sounds & intelligibility (Munro & Derwing 2008)
- Segmental errors & degree of L2 accentedness (Brennan & Brennan 1981)
- Salience of errors & accentedness (Munro 1995)

Accentedness and segmental training

- Individual consonants and vowel sounds vs. suprasegmental (Sereno et al. 2016; Jilka 2000)
- Reduce perceived accentedness (and associated discomfort)

Pronunciation Overlooked and Not Emphasized

All too often, teaching pronunciation is overlooked and not emphasized in teaching contexts (Murphy 1991)

- Why?
 - Because teaching pronunciation is difficult, particularly in a revitalization context

Focus here is on how to use documentary materials and recordings to better teach & learn pronunciation

- Make materials more useable, more effective
- Do more than “pay lip service” to pronunciation

Pronunciation

Consequences of poor pronunciation

Self-confidence and productivity

- Disheartened by harsh judgments and criticism for mispronunciations (Miyashita & Chatisis 2013)
- Dismissiveness surrounding accented sound

Learner focus on sound system

- Express themselves naturally
- Confidence and acceptance (Carpenter 1997; Hinton & Hale 2001)
- Non-judgemental approaches (teacher challenge/learner challenge)

Pronunciation

Challenges for Teaching Pronunciation

Subconsciousness of sound's grammar

- Difficulty associated with L1 pronunciation predispositions (Cook 1996)
- Learner likely not sensitive to specific L2 associations (Gandour 1983; Jongman & Moore 2000).
- Acoustic cues habitually attended to in the L1 serve different purposes in L2

Communicativeness vs. Idealized Speaker

- Value learners for interactions (Cook 2003); communication is the primary goal
- Support naturalness of sound (as much as the speaker chooses)

Jargon and training

Goal for a Friday afternoon

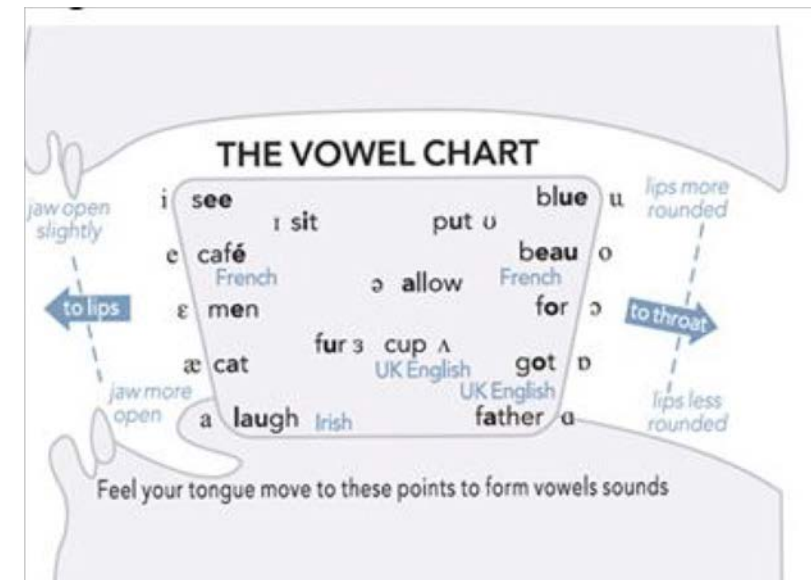
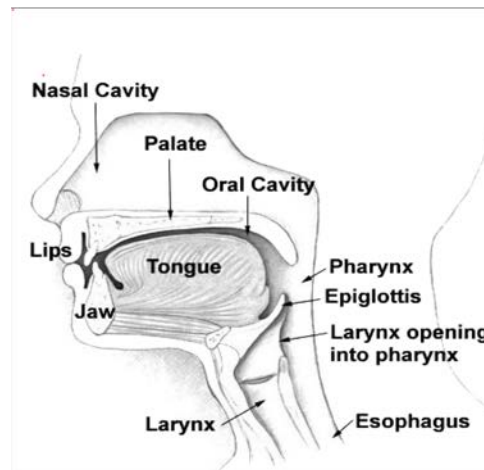
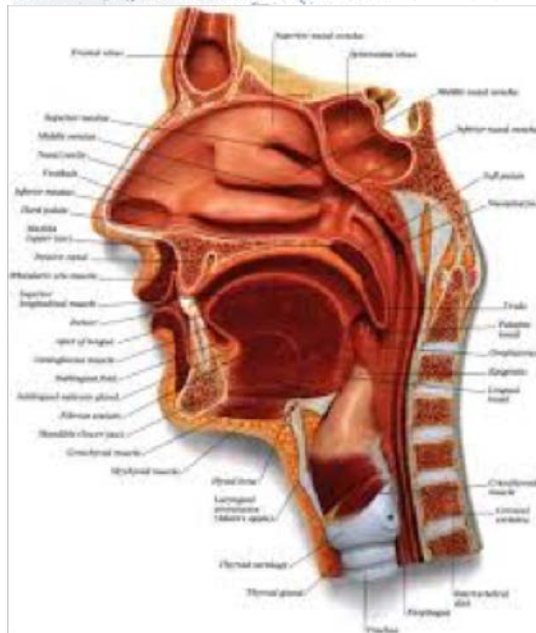
Start a discussion about the role of pronunciation

- make use of technology
 - create intuitions about our own speech/pronunciation, to hear ourselves as others hear us, not how we hear ourselves
 - Provide visual and audio support
 - Provide instant, non-judgmental feedback
- Use phonetics tools, but simplify the jargon
 - modify technical information to be teachable/learnable

Options for Supporting Pronunciation

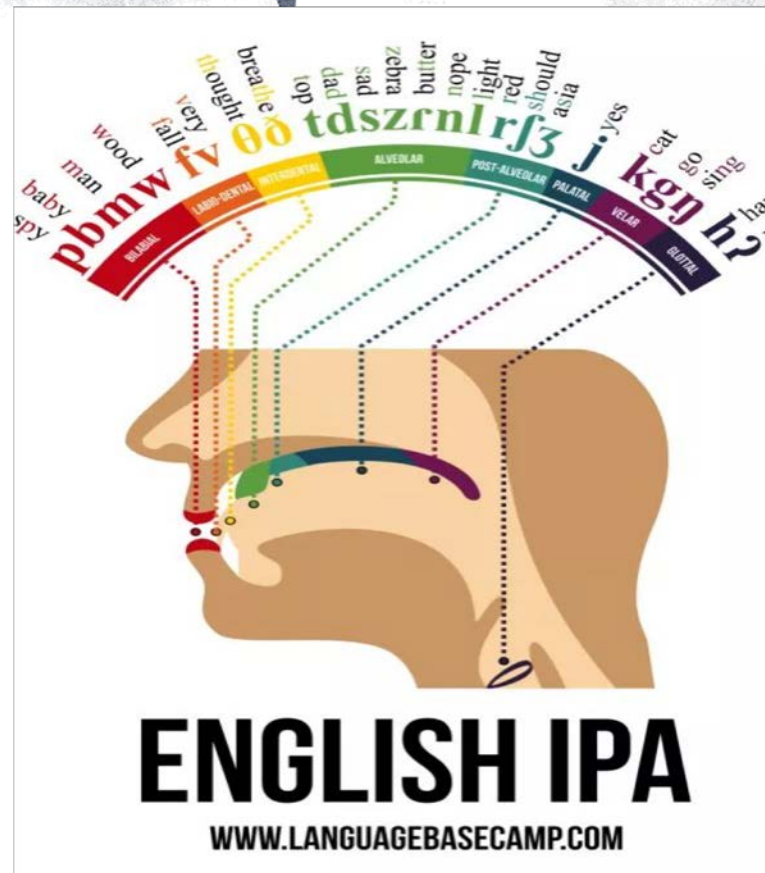
- Diagrams and examples for articulation support
- Screeners to focus pronunciation
- Visualization of pronunciation (Praat & Iowa websites)
- Using online platforms to provide pronunciation practice

Technical Information's Role

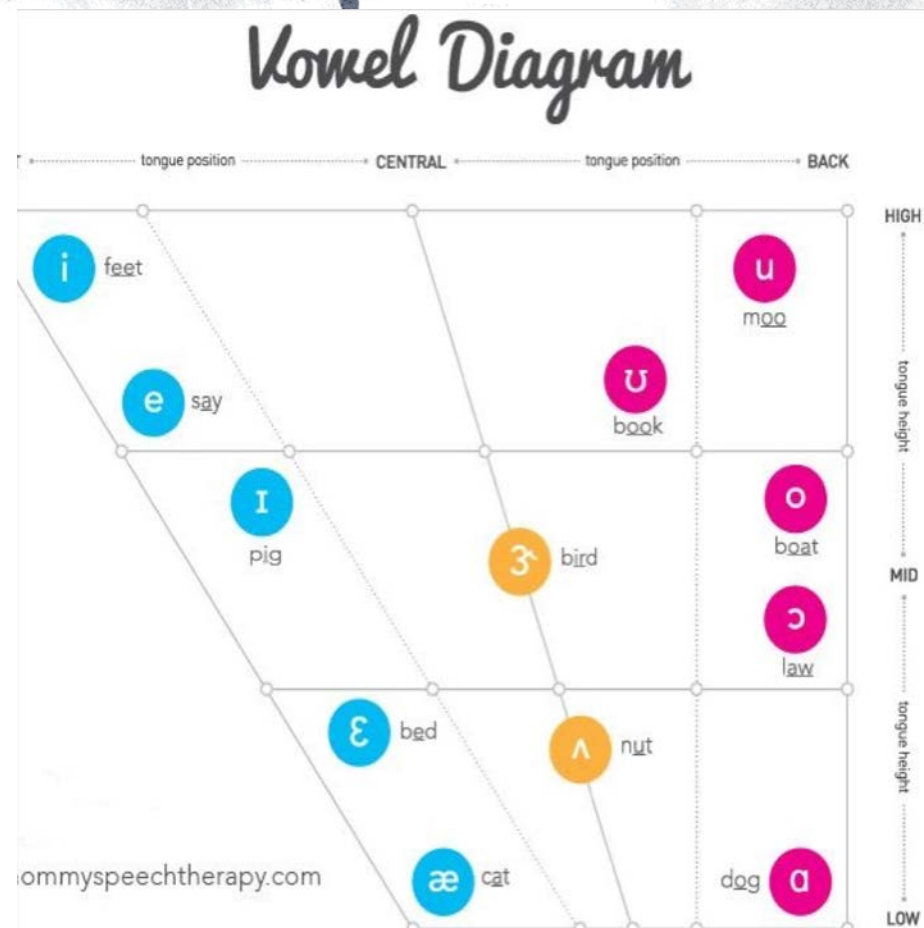


NOT THIS!

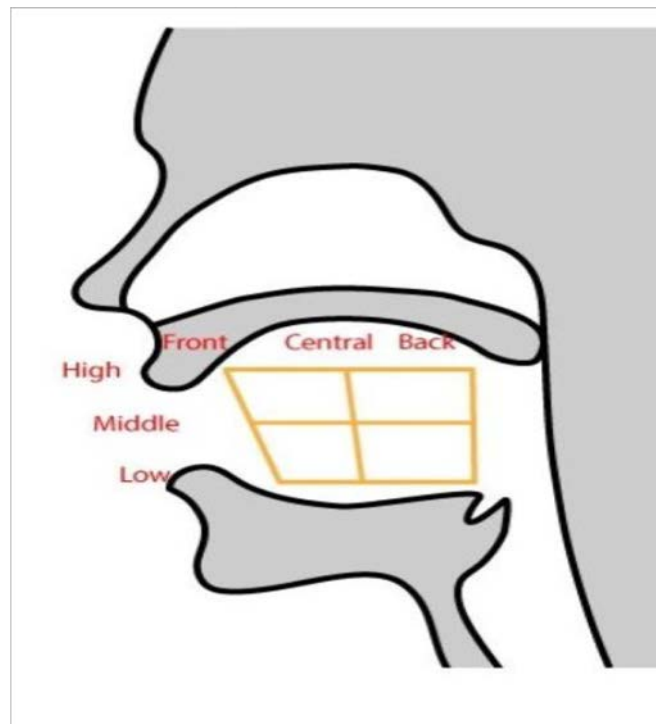
What might be useful?



How can information be organized?



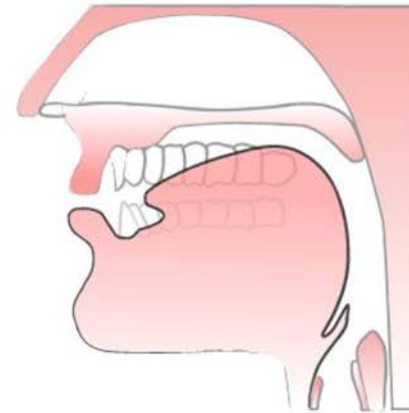
Help Learners Make Connections



Help with Specific Sounds

How to pronounce the 'oo sound' /u/

To create the 'oo sound' /u/, the lips are pulled into a tense, small circle. In addition, the back of the tongue is raised to a high position and sides of the tongue may touch the top teeth at the back of the mouth.



'OO SOUND' ILLUSTRATION

Listen to the 'oo sound'

▶ oo sound



Combine Useful Information

Vowels

Symbol	Myaamia example word	As in English
a	<u>a</u> ya (hello)	po <u>t</u>
aa	w <u>aa</u> wi (egg)	fa <u>ll</u>
e	<u>a</u> le <u>m</u> wa (dog)	be <u>t</u>
ee	nee <u>p</u> iki (he/she dies)	ma <u>d</u> e
i	n <u>i</u> pi (water)	bi <u>g</u>
ii	ni <u>i</u> wi (four)	se <u>e</u>
o	aya <u>a</u> lo (go!)	no <u>o</u>
oo	<u>o</u> owa <u>a</u> ha (here)	mo <u>o</u> se



What is a good starting place?

iihia



moohci

What is a good starting place?

iihia



moohci

“Sounds of Speech”

Anatomy
movement related
to sounds

Phonetics: The Sounds of American English

consonants — manner — place — voice — vowels — monophthongs — diphthongs

stop — fricative — affricate — nasal — liquid — glide

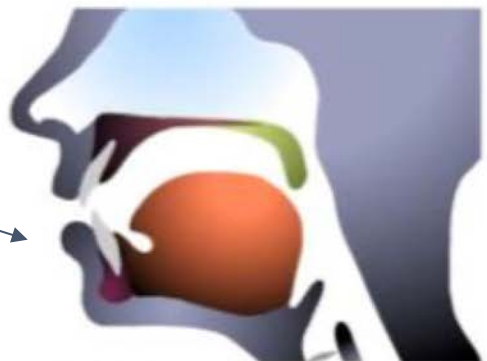
Nasal

Voiceless — Voiced

/m/ — Bilabial

/n/ — Lingual-alveolar

/ŋ/ — Lingual-velar



/m/ play

animation with sound — step-by-step description

Video of
articulation

exemplars

Articulation Screener

- Examine pronunciation of different speech sounds
- Pictures targeting specific sounds
 - “What is this called?”
- Sounds in initial, medial, final positions
- Can serve as feedback

Articulation Screener

Little Bee Speech
Articulation screener
images 1 of 2




4 of 5 • Articulation Screener ©2015 www.mommyspeechtherapy.com • www.littlebeespeech.com

P - Sound (mastered around 2 yrs. old) <input type="checkbox"/> piano _____ <input type="checkbox"/> apple _____ <input type="checkbox"/> mop _____	B - Sound (mastered around 2 yrs. old) <input type="checkbox"/> book _____ <input type="checkbox"/> rabbit _____ <input type="checkbox"/> crib _____	M - Sound (mastered around 2 yrs. old) <input type="checkbox"/> mop _____ <input type="checkbox"/> hammer _____ <input type="checkbox"/> thumb _____
H - Sound (mastered around 2 yrs. old) <input type="checkbox"/> hammer _____	N - Sound (mastered around 2 yrs. old) <input type="checkbox"/> nose _____ <input type="checkbox"/> piano _____ <input type="checkbox"/> sun _____	D - Sound (mastered around 3 yrs. old) <input type="checkbox"/> dishes _____ <input type="checkbox"/> ladder _____ <input type="checkbox"/> slide _____
T - Sound (mastered around 3 yrs. old) <input type="checkbox"/> teeth _____ <input type="checkbox"/> guitar _____ <input type="checkbox"/> rabbit _____	K - Sound (mastered around 3 yrs. old) <input type="checkbox"/> ketchup _____ <input type="checkbox"/> vacuum _____ <input type="checkbox"/> book _____	G - Sound (mastered around 3 yrs. old) <input type="checkbox"/> guitar _____ <input type="checkbox"/> yogurt _____ <input type="checkbox"/> frog _____
W - Sound (mastered around 3 yrs. old) <input type="checkbox"/> watch _____	NG - Sound (mastered around 4 yrs. old) <input type="checkbox"/> blanket _____ <input type="checkbox"/> swing _____	F - Sound (mastered around 4 yrs. old) <input type="checkbox"/> feather _____ <input type="checkbox"/> muffin _____ <input type="checkbox"/> giraffe _____
V - Sound (mastered around 5 yrs. old) <input type="checkbox"/> vacuum _____ <input type="checkbox"/> shovel _____ <input type="checkbox"/> stove _____	Y - Sound (mastered around 5 yrs. old) <input type="checkbox"/> yogurt _____	CH - Sound (mastered around 5 yrs. old) <input type="checkbox"/> chair _____ <input type="checkbox"/> ketchup _____ <input type="checkbox"/> watch _____

2 of 5 • Articulation Screener ©2015 www.mommyspeechtherapy.com • www.littlebeespeech.com

Articulation “Screenener” Adapted

- Myaamia adaptation: “unique” sounds (e.g., long vowels, preaspiration)

	
	4

aa – sound

w**aa**wi _____

oo – sound

m**oo****h**ci _____

pre-aspirated h sound

m**oo****h**ci _____

ma**h**kwa _____

Articulation “Screenener” Adapted

- Myaamia adaptation for preaspiration with minimal pairs



Pre-aspirated h sound

sakahaakani _____
(nail)

sahkahaakani _____
(match)

Pre-aspirated h sound

apweekani _____
(grill)

ahpwaakana _____
(pipe)

Articulation “Screenener” Adapted

- Pictures mixed to not give away sound being focused on



Acoustic & Audio Software & Technology

- Use technology for documentation (as we are trained to do)
- Adapt that technology to train teachers and learners
- GOAL: get learners to hear and produce the sounds that, as native speakers of a different language, they've "trained" themselves to ignore

Phones, Praat, Audacity

- Free or accessible ways to record, listen to, and examine speech:
 - Cell phones - ubiquitous and can record and play sound; apps
 - Praat: ideal for linguistic analysis, can help in a classroom
 - Audacity: a bit more user friendly, powerful in other ways
 - Others: WASP, Sound Meter, Sing & See, ...more!

GOAL: Get students to listen to authentic language, then have them record and listen to themselves – to build intuitions about their own speech

Phones, Praat, Audacity

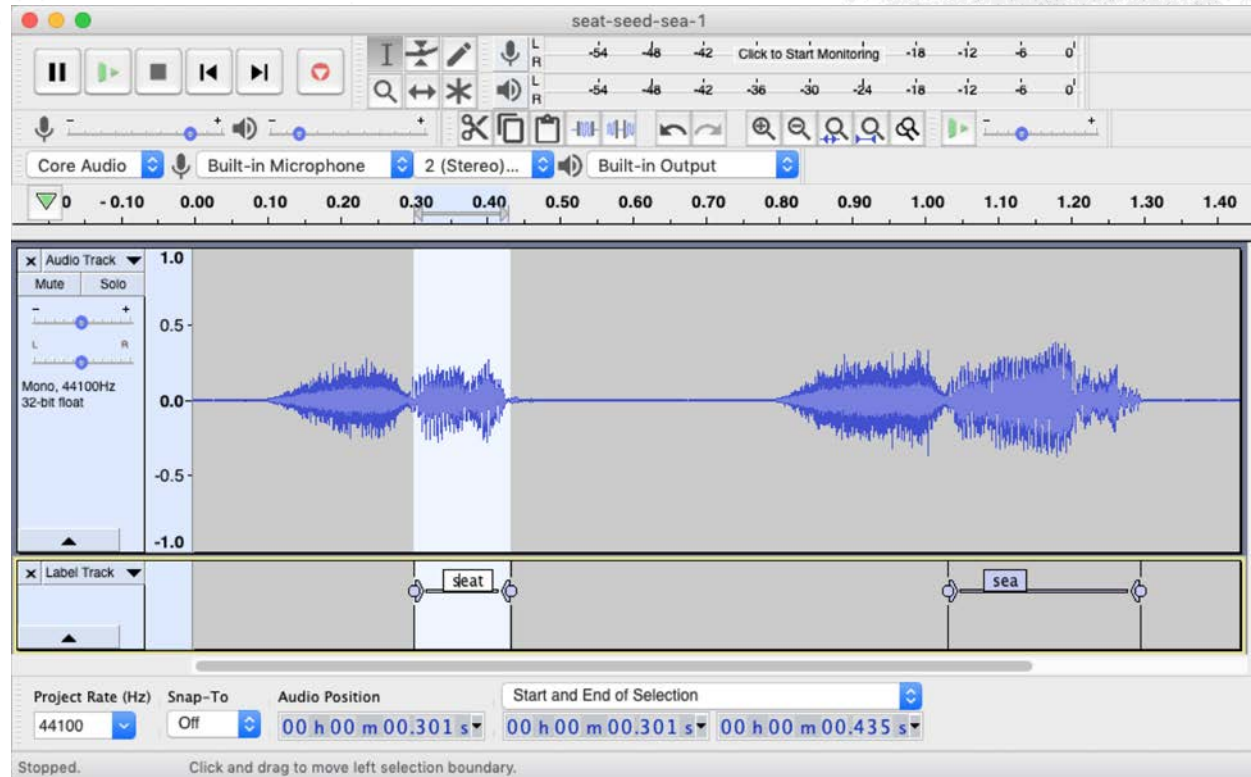
- Yesterday (just a sample - not an exhaustive list):
 - Mizuki Miyashita and collaborators' talk on MeTILDA and "pitch art"
 - Mark Richards & Josephine Lardy's talk on 'audio chunks'
 - Sonya Bird and collaborators's talk on 'seeing speech' in Hul'q'umi'num'

- And more today...

...not surprising, given the theme of the conference this year!

Visualization for Pronunciation

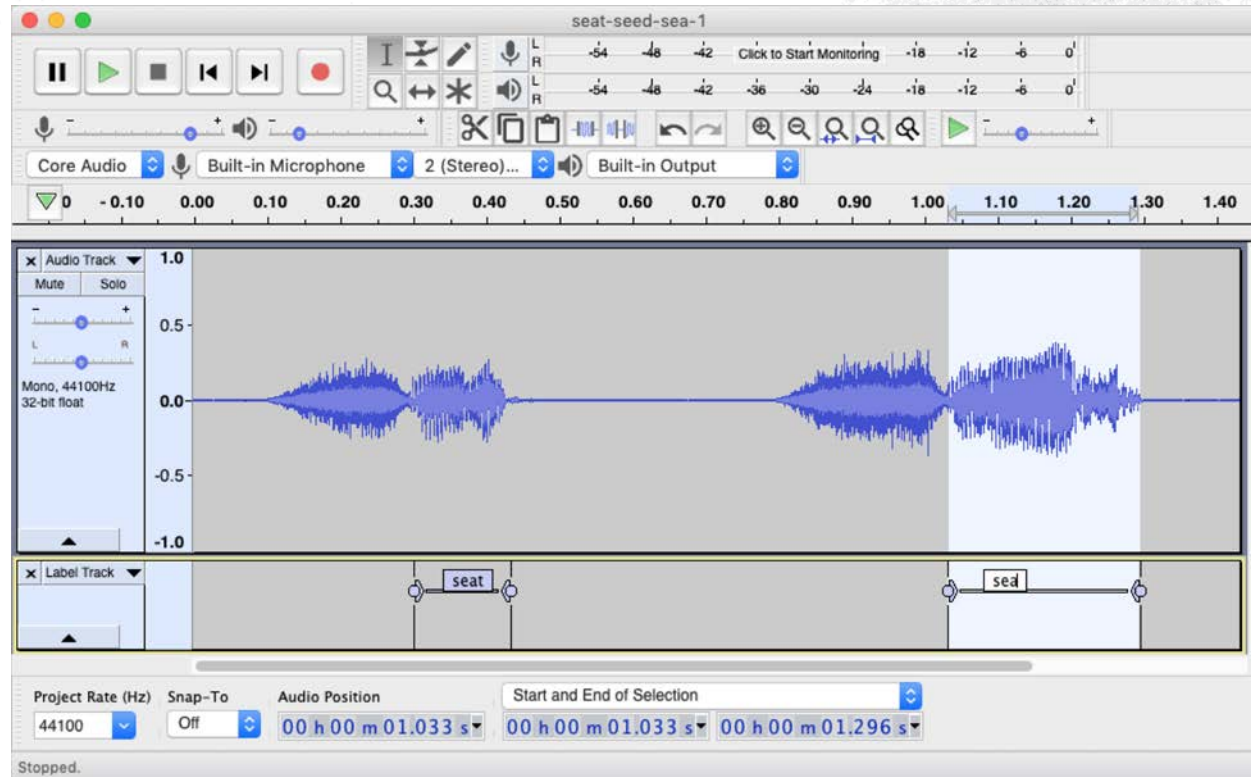
“seeing” is “hearing”!



“Seeing” sounds can help learners “hear” them.

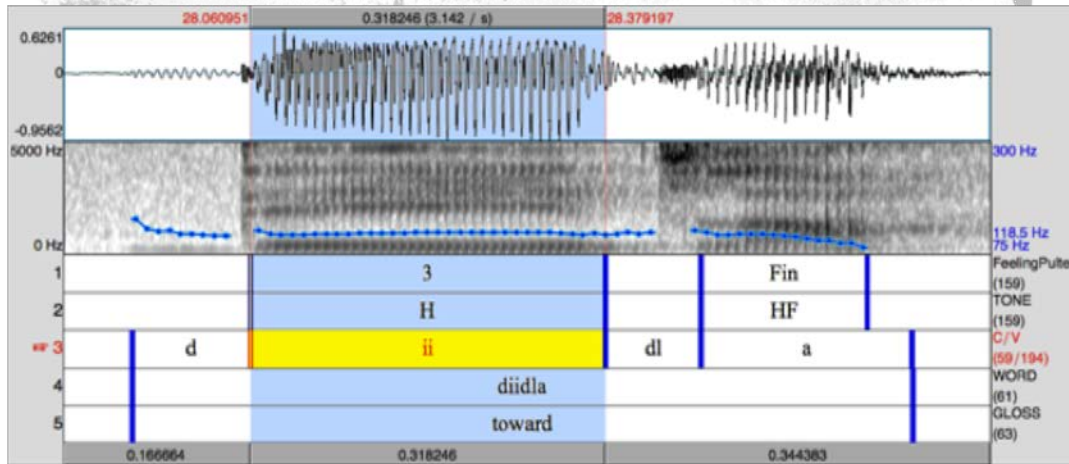
Visualization for Pronunciation

“seeing” is “hearing”!

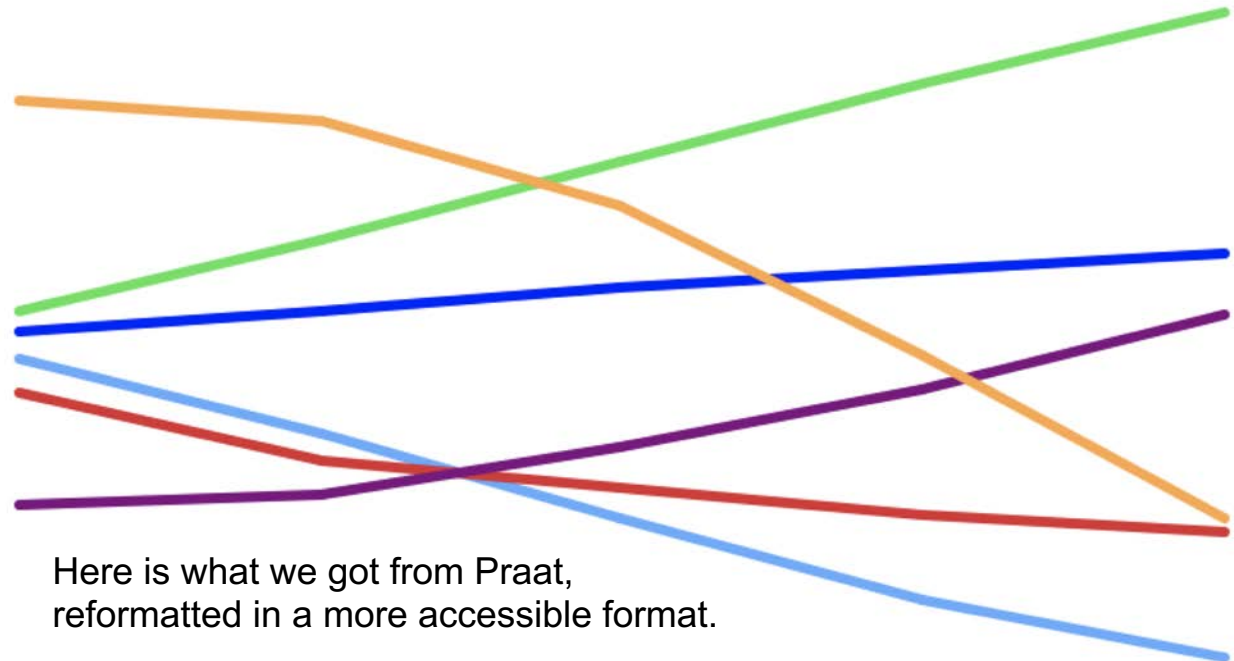


“Seeing” sounds can help learners “hear” them.

Audio Software for Visualizing: Praat & Audacity



Here is Praat, working hard and being *great* for data analysis! ...but too technical!



Here is what we got from Praat, reformatted in a more accessible format.

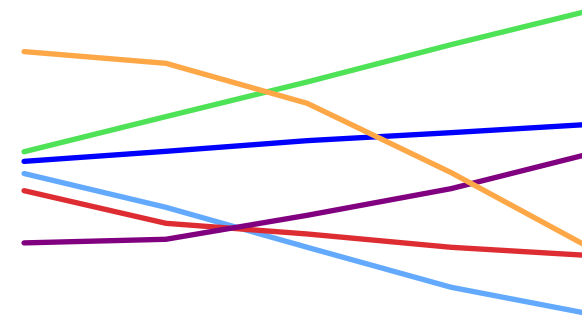
* The research that went into this slide (and the next two) was approved by the Cherokee Nation IRB. The opinions expressed here are those of the authors and do not necessarily reflect the views of the Cherokee Nation. (Herrick et al 2015; Herrick & Hirata-Edds 2015; Hirata-Edds & Herrick 2015, 2017)

Cherokee Tones: Examples

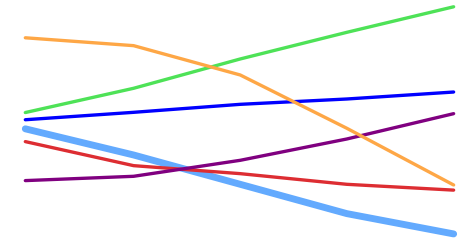
Click to hear and see each tone

Comparison of tones presented graphically

low falling	1	dl aa yhga
low (mid) level	2	g ii hli
high level	3	d ii dla
super-high	4	g aa du
rising	23	g aa da
falling	32	gal uuy hsga



low falling (1)



dl**aa**yhga

'bluejay'

g**aa**naali

'lazy'

dl**uu**dlu

'purple martin'

s**vv**gi

'onion'

g**uu**gu

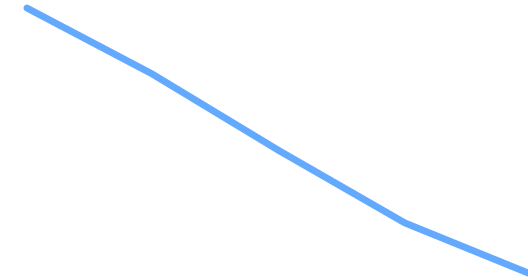
'tick'

k**oo**sdu

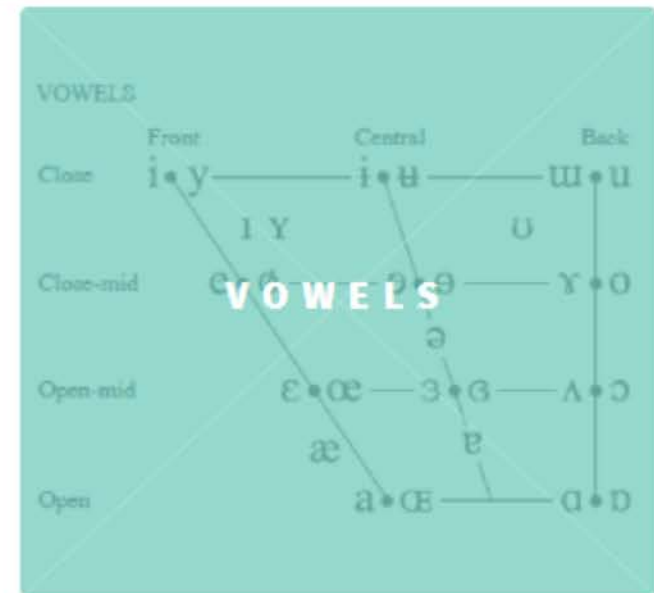
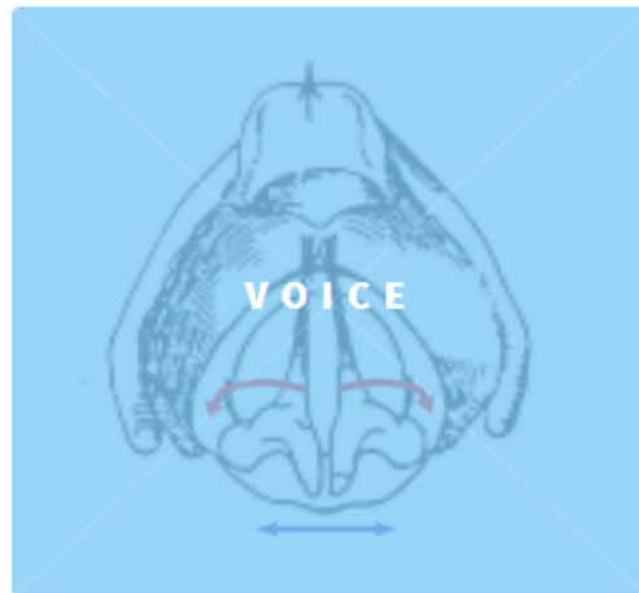
'ashes'

na**aa**sgi

'pet'



Interactive Website: Berkeley



<http://linguistics.berkeley.edu/phonwork/>

Interactive Website: Berkeley

Mandarin Fricative Transcription

Type the English gloss of the word you hear.

Labiodental	發	fa ㄆㄚˊ			
		'issue'			
Dental	仨	sa ㄙㄚˊ	啞	tʂa ㄘㄚˊ	擦
		'three items'		'smack lips'	'wipe'
Retroflex	沙	ʂa ㄕㄚˊ	扎	tʂa ㄘㄚˊ	插
		'sand'		'pierce'	'stick in'
Alveolopalatal	瞎	cia ㄘㄧㄚˊ	加	tʂia ㄘㄚˊ	掐
		'blind'		'add'	'squeeze tightly'
Velar	哈	xa ㄒㄚˊ			
		'sound of laughter'			

PLAY IT AGAIN

type answer here

Correct: 3/10 ---- Run: 1/3

Quantity contrasts in Italian

li	li	no:mi	no:mi
'there'	'to him'	'names'	'gnomes'
fol:za	foʎ:za	non:zo	so:zo
'crowd'	'leaf'	'grandfather'	'dream'
velare	veʎ:are		
'conceal'	'keep watch'		

What Italian word is this?

PLAY IT AGAIN

type answer here

Correct: 6/10 ---- Run: 6/3

Online Platforms

- *Use ...*Iowa Sounds of English (Tracy mentioned earlier)
- *Get Inspiration ...*from Berkeley Phonetics Webpage
- *Create*quizzes in course management software (Canvas, etc.)

A little training for a big payoff

Small investment in training can lead to a big payoff

- Create awareness of sounds
- Provide opportunities for learning even when access to teachers is limited
 - ...and provide non-judgmental feedback / a low-risk environment to practice

...and this can be best done by allowing documentation and teaching to inform one another ...

Options for Supporting Pronunciation

- Diagrams and examples for articulation support
- Screeners to help focus pronunciation
- Visualization of pronunciation
- Websites with sound information

Symbol	Approximate example word	As in English
a	am (open)	ah
aa	am (closed)	ah
u	um (open)	uh
uu	um (closed)	uh
i	ih (open)	ih
ii	ih (closed)	ih
e	eh (open)	eh
ee	eh (closed)	eh
o	oh (open)	oh
oo	oh (closed)	oh



4

aa – sound

waawi

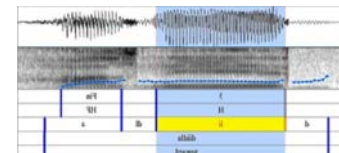
oo – sound

moohci

pre-aspirated h sound

moohci

mahkwa



So, while you're documenting...

Consider how your work can help with . . .

- making technical information teachable, learnable, and accessible
- hearing ourselves more as others hear us
- creating intuitions about our own pronunciations
- integrating pronunciation into language teaching

Acknowledgements & Contact Information

We appreciate assistance from

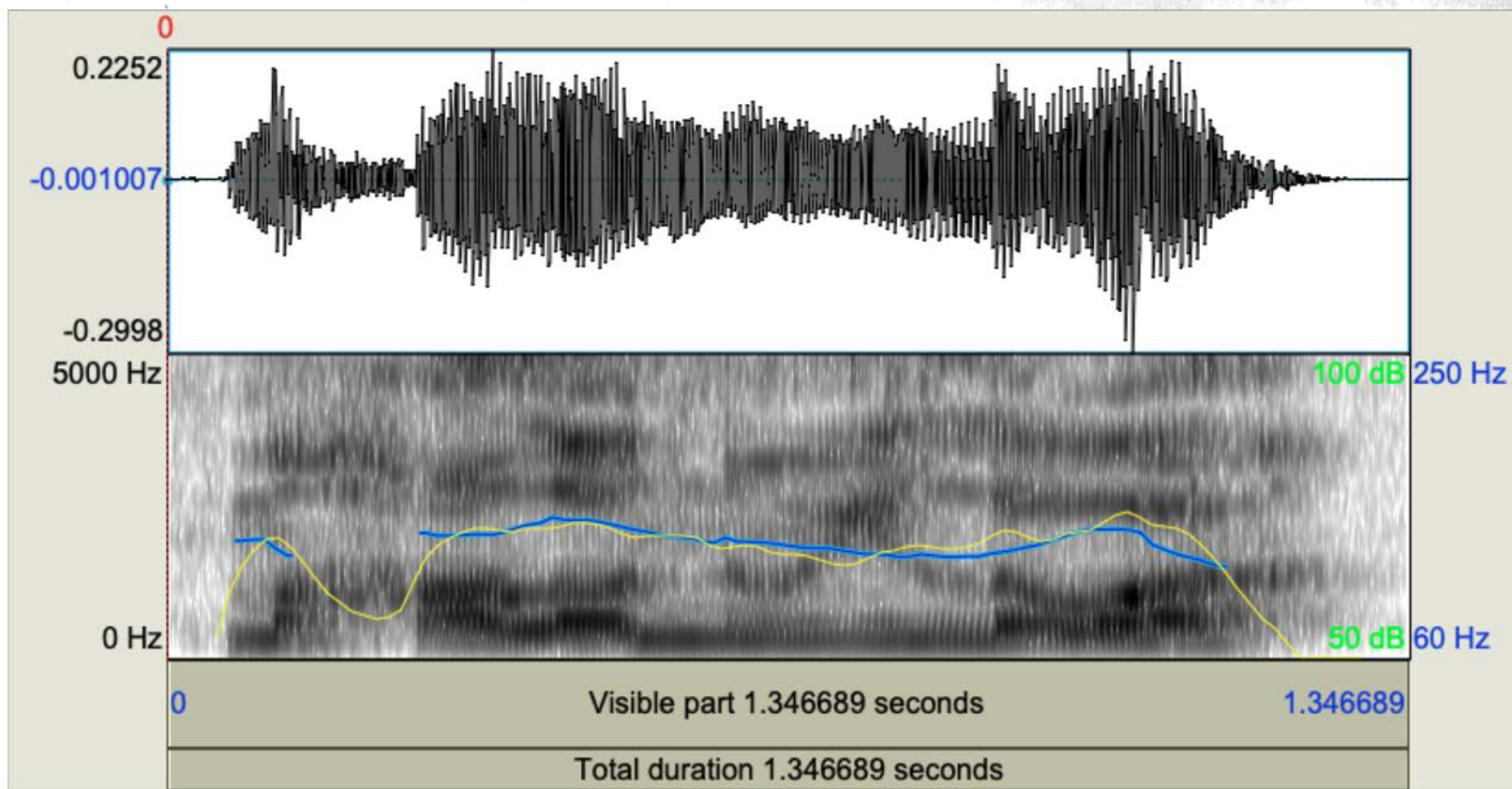
- David Costa, Myaamia Center
- Jarrid Baldwin, Myaamia Center and UH Mānoa
- Durbin Feeling & John Ross (Cherokee language)
- University of Oklahoma's Center for Teaching Excellence

Email addresses

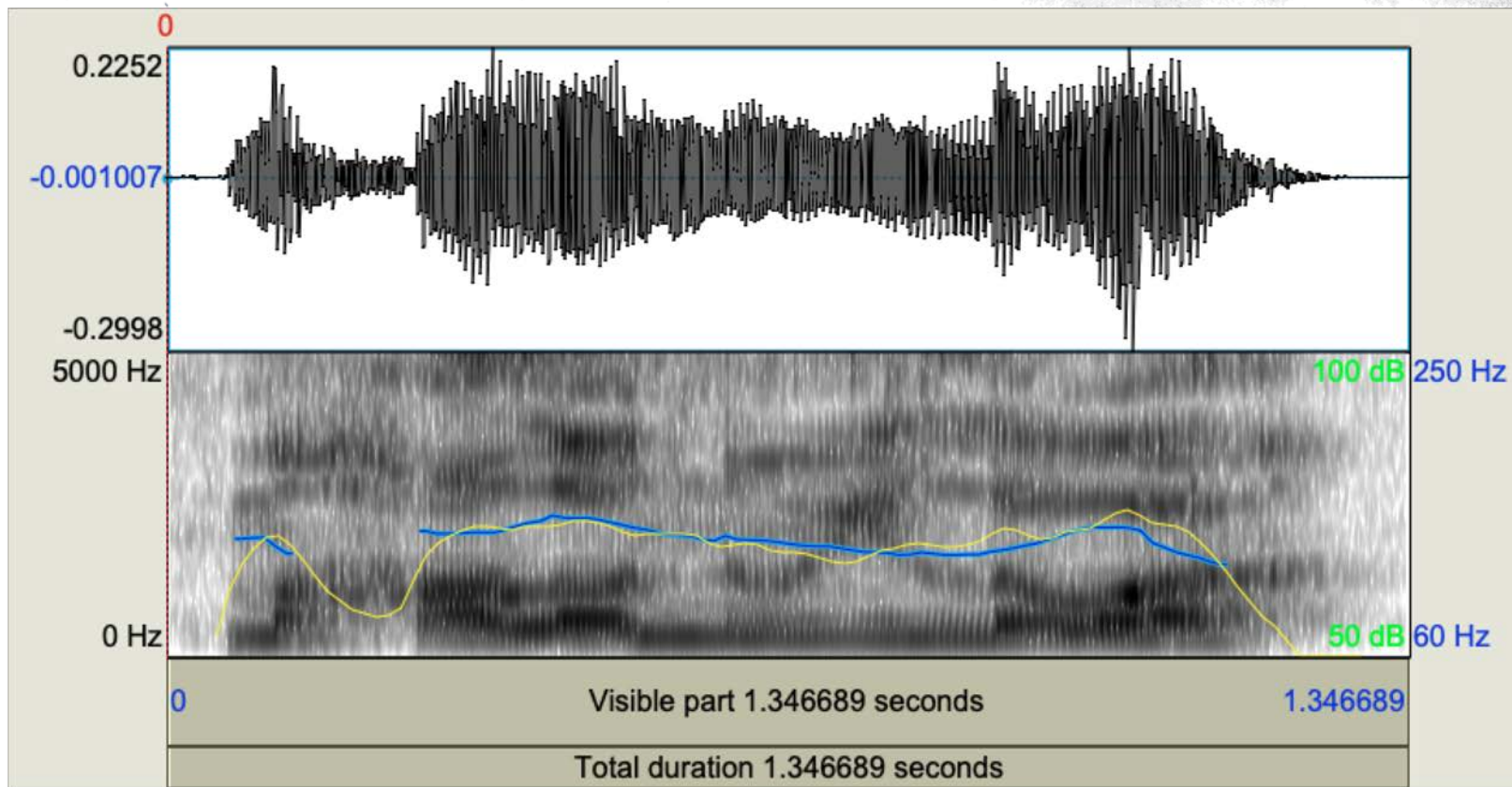
- dylan.herrick@ou.edu
- tracy@ku.edu

References

- Brennan, E. & Brennan, J.** 1981. Measurements of accent and attitude toward Mexican-American speech. *Journal of Psycholinguistic Research*, 10, 487-501.
- Carpenter, V.** 1997. Teaching children to “unlearn” the sounds of English. In Reyhner, Jon (ed.), *Teaching indigenous languages*, 31–39. Flagstaff, AZ: Northern Arizona University.
- Cook, V.** 2003. *Effects of the Second Language on the First*. Clevedon, UK: Multilingual Matters.
- Derwing, T. M., Munro, M. J., & Wiebe, G.** 1998. Evidence in favor of broad framework for pronunciation instruction. *Language Learning*, 48, 393–410.
- Herrick, Dylan, Marcellino Berardo, Durbin Feeling, Tracy Hirata-Edds, & Lizette Peter.** 2015. “Collaborative Documentation and Revitalization of Cherokee Tone”. *Language Documentation and Conservation*. 12-31. <http://hdl.handle.net/10125/24630>
- Herrick, Dylan, and Tracy Hirata-Edds.** 2015. From technical to teachable: Phonetics and phonology. Paper presented at the International Conference on Language Documentation & Conservation [ICLDC 4]. Honolulu, HI. Feb 26th-Mar 1st.
- Hirata-Edds, Tracy, and Dylan Herrick.** 2015. From technical to teachable: Tone and vowel length. Paper presented at the International Conference on Language Documentation & Conservation [ICLDC 4]. Honolulu, HI. Feb 26th-Mar 1st.
- Hirata-Edds, Tracy, and Dylan Herrick.** 2017. Building Tone Resources for Second Language Learners from Phonetic Documentation: Cherokee Examples. *Language Documentation & Conservation*, 11. 289-304. <http://hdl.handle.net/10125/24737>.
- Hinton, L. & Hale, K.** 2001. *The Green Book of Language Revitalization in Practice*. New York: Academic Press.
- Jilka, M.** 2000. The contribution of intonation to the perception of foreign accent. Unpublished doctoral dissertation, University of Stuttgart.
- Massaro et. al.** 2008. Pronunciation Training: The Role of Eye and Ear. INTERSPEECH 2008, 9th Annual Conference of the International Speech Communication Association, Brisbane, Australia, September 22-26, 2008. (Among other work!)
- Miyashita, M. & Chatsis, A.** 2013. Collaborative Development of Blackfoot Language Courses. *Language Documentation & Conservation* 7, 302-333
- Munro, M. J.** (1995). Nonsegmental factors in foreign accent: Ratings of filtered speech. *Studies in Second Language Acquisition*, 17, 17–34.
- Munro, M. J. & Derwing, T. M.** (2008). Segmental acquisition in adult ESL learners: A longitudinal study of vowel production. *Language Learning*, 58, 479-502.
- Murphy, John.** 1991. Oral communication in TESOL: Integrating listening, speaking, and pronunciation. *TESOL Quarterly*, 25, 51–74.
- Sereno, J., Lammers, L. & Jongman, A.** 2016. The relative contribution of segments and intonation to the perception of foreign-accented speech. *Applied Psycholinguistics*, 37, 303-322.



Mahalo nui loa!



Comments & Questions?



Glad you asked that!

- Q: TECH GONE BAD!
- A: Be prepared to do something with the same lesson objectives, but tech-free.
 - Chalk/Whiteboard
 - Overhead
 - Lecture
 - Groupwork
 - Fieldtrip
 -
- Maintain the lesson objectives, but through a different approach

Glad you asked that!

- More questions than answers – we hope this *starts* a conversation about doing more to teach pronunciation & make technical, but helpful, linguistic information more salient.

- Other Qs:

- How long does it take?
- When should pronunciation be introduced?
- Is there a critical period?
- What are other internal and external variables?
- What is the impact of exposure opportunities?
- Why is it so hard?